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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/698,267	10/31/2003	Robert L. Goldsmith	647P005	1670
42754	7590	01/25/2007	EXAMINER	
NIELDS & LEMACK 176 EAST MAIN STREET, SUITE 7 WESTBORO, MA 01581			MENON, KRISHNAN S	
			ART UNIT	PAPER NUMBER
			1723	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		01/25/2007	PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/698,267	GOLDSMITH, ROBERT L.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Krishnan S. Menon	1723	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 03 January 2007.
- 2a) This action is **FINAL**.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 2,3,5-7 and 9-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 2,3,5-7 and 9-11 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____. | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|   | 6) <input type="checkbox"/> Other: _____.                                   |

## DETAILED ACTION

Claims 2,3,5-7 and 9-11 are pending as amended 1/3/07.

### ***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 2,3,5-7 and 9-11 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over Claim 18 of copending Application, No. 10/676,671. Although the conflicting claims are not identical, they are not patentably distinct from each other because claims of both applications recite the use of an apparatus having similar structural elements, the present application reciting passing a sweep fluid through the permeate; '671 application uses the permeate itself as the sweep fluid.

These are provisional obviousness-type double patenting rejections because the conflicting claims have not in fact been patented.

***Terminal Disclaimer***

The Terminal Disclaimer filed 11/16/06 is not proper. An attorney or agent, not of record, is not authorized to sign a terminal disclaimer in the capacity as an attorney or agent acting in a representative capacity as provided by 37 CFR 1.34 (a). See 37 CFR 1.321(b) and/or (c).

It would be acceptable for a person, other than a recognized officer, to sign a terminal disclaimer, provided the record for the application includes a statement that the person is empowered to sign terminal disclaimers and/or act on behalf of the organization.

Accordingly, a new terminal disclaimer which includes the above empowerment statement will be considered to be signed by an appropriate official of the assignee. A separately filed paper referencing the previously filed terminal disclaimer and containing a proper empowerment statement would also be acceptable.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 2-7, and 9-11 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The newly added limitation in the independent claim 9, "without encountering an egress to an external surface of the membrane element" is new matter. There is no disclosure in the specification or claims as originally filed for this negative limitation. On the other hand, paragraph 28 of the application PGPUB discloses that it is possible to have additional egress channels:

[0028] While the above drawings and description disclose the introduction of the sweep fluid at or near one end face of the element and the withdrawal of sweep fluid and gas-phase permeate at or near the other end face, it is also possible to have permeate conduit channels along the length of the element, as disclosed in the above-referenced Goldsmith patents. Using appropriate seals, channels along the length of the membrane element can be used for introduction of the sweep fluid into the permeate conduit and/or withdrawal of the sweep fluid and gas-phase permeate from the permeate conduit. [Emphasis added]

Applicant's arguments regarding this rejection are not persuasive. As argued by the applicant, the permeation paths through the skin through the entire length of the module between the two ends provide egress pathways. In addition, the above paragraph teaches that egress points can be provided in between as well.

The mere absence of a positive recitation is not basis for an exclusion. Any claim containing a negative limitation which does not have basis in the original disclosure should be rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the

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written description requirement. [MPEP 2173.05(i)]. See MPEP 2173.05(i) about negative limitations. In this case, there is positive recitation. Applicant also has not shown any criticality of having egress points only at the extremities either.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2,3,5-7 and 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rajnik et al (US 6,077,436) in view of Goldsmith et al (US 4,781,831); or alternately, Goldsmith in view of Rajnik

Claim 9: Rajnik teaches a process of separating a feed stock into permeate and retentate using a sweep gas flow from one end to the other as claimed (see abstract which teaches two sets of passages extending the longitudinal axis, with feed stream in one passage and the output stream in the other; column 6 lines 38-43, column 11 lines 16-23). Rajnik teaches a cross-flow membrane device (see figures) for the process having a ceramic monolith support (column 3 lines 55-60), plurality of longitudinal passages for feed and gas-phase permeate (column 4 lines 1-10; column 5 lines 30-48), a membrane coated on the feed side walls (column 6 lines 14-25), permeate conduits in the monolith (see figures, column 4 lines 1-17), and means for permeate separation, withdrawal and sweep gas (the parallel set of channels are for feed and

permeate as in column 4 lines 39-47 and column 5 lines 30-48; column 6 lines 38-43).

The means-plus-function language in the claim would invoke 35 USC 112, sixth paragraph, and accordingly, the claimed means would be what is specified or equivalents thereof.

Rajnik does not teach a housing assembly with associated connection ports to contain the element as in claims 9, 6 and 7. However, such a housing would be implied, since the element is not usable without a housing and associated connection ports. “[I]n considering the disclosure of a reference, it is proper to take into account not only specific teachings of the reference but also the inferences which one skilled in the art would reasonably be expected to draw therefrom.” In re Preda, 401 F.2d 825, 826, 159 USPQ 342, 344 (CCPA 1968); In re Lamberti, 545 F.2d 747, 750, 192 USPQ 278, 280 (CCPA 1976). Regarding the channels communicating with inlet and outlet ports, Rajnik teaches egress channels (4) running the entire length of the element (1), with outlet holes (5); thus there can be outlet holes (5) close to both ends of the element, and channels (4) seem to open at the end faces as well – with respect to figure 2 and 2a, column 8 lines 53-65. Other figures in Rajnik also have similar structures.

Goldsmith teaches a housing with feedstock inlet, retentate outlet, etc – see figure 1. The means for sealing the permeate and sweep gas flows from the feedstock and retentate flows is means 10 in applicant’s specification. This limitation invokes 35 USC 112, sixth paragraph. Therefore, the means can be what is in the specification or equivalent thereof. Means 10 in applicant’s figures appear to be a gasket seal; Goldsmith provides O-ring seals (56) which are equivalent. It would be obvious to one

of ordinary skill in the art at the time of invention to use the teaching of Goldsmith in the teaching of Rajnik to have the housing to use the membrane element taught by Rajnik. The need for the sweep gas inlet and permeate/sweep gas outlet, even if not shown in the references, would be obvious to one of ordinary skill.

With respect to the newly added limitation of "... sweep fluid flows substantially through the entire length of the permeate chambers without encountering an egress to the external surface...", Rajnik teaches in column 4 lines 36-61 that the 'egress conduits' (which are the longitudinal permeate or filtrate channels in Rajnik) can be manifolded to the outside structure for the application as desired. How these connections can be established is well known in the arts of pervaporation and gas separation – see the following references as evidence:

Reddy , US 5,096,584; Friesen et al, US 5,108,464; Makino et al, US 4,718,921.

Claims 2 and 3: single monolith or monolith segments: column 4 lines 18-36

Claim 5: permeate channels at end faces – see column 8 lines 53-65 – egress channels. Channels are slots – see figures.

Claim 10 and 11: sweep gas inlet port and outlet port for co-current or counter-current flow: providing sweep gas is taught by Rajnik, which flows form one end to the other as seen in column 11 lines 16-23. Co-current or counter-current flows would be equivalent since the permeate stream leaving the membrane would be of the same composition in either flow, and need for the sweep gas is to reduce the partial pressure of the permeate gas, which is not affected by the direction of flow. The apparatus is capable of flow in either direction.

Alternate Rejection: Goldsmith teaches the structure of the membrane as recited with the monolith, and the housing – see figures 1 and 7, which show the permeate egress channels at the feed and retentate ends of the monolith (column 12 lines 3-35). Goldsmith differs from the claims in having the connections for the sweep fluid, which is taught by Rajnik. It would be obvious to one of ordinary skill in the art at the time of invention to use the teaching of Rajnik in the teaching of Goldsmith so that the Goldsmith device can be modified for more functionalities such as supply of sweep gas for pervaporation or gas separation, or reactive gases – see Rajnik column 6 lines 38-43.

Modification of elements for submitting sweep gas for pervaporation or gas separation is well known in the art, and is therefore, not patentable. Providing inlet and outlet connections in a membrane module for the sweep gas is also within the skill level of one of ordinary skill in the art, and is not a patentable limitation, as shown by the additional references listed above.

### ***Response to Arguments***

Applicant's arguments filed 1/3/07 have been fully considered but they are not persuasive.

Argument that Goldsmith does not teach sweep fluid: this is noted in the rejection. Goldsmith was used in the first rejection only for its teaching of providing a housing. In the alternate rejection, Goldsmith was modified with Rajnik for the sweep gas.

Argument that Goldsmith teaches away: the teaching of Goldsmith does not criticize, discredit, or otherwise discourage the use of sweep gas. See *In re Fulton*, 391 F.3d 1195, 1201, 73 USPQ2d 1141, 1146 (Fed. Cir. 2004).

With respect to Rajnik, applicant's contention is that it teaches several egress points along the length; and is not limited to just at the ends. This does not disqualify Rajnik as a reference. First of all, applicant discloses that egress conduits can also be provided in between the ends in paragraph 28, as shown above. Secondly, Rajnik implies limiting the egress conduits to the minimum necessary – see column 8 lines 28-65. Rajnik teaches the holes (5) for manifolding the egress conduits. Even if Rajnik is construed as not teaching it, one of ordinary skill in the art would have sufficient knowledge and/or information to provide the locations and the number of such holes for manifolding for the purpose of providing sweep gas, as shown by the additional evidence. The argument that it is not possible to configure either Goldsmith or Rajnik to accomplish the invention claimed is not convincing.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Krishnan S. Menon whose telephone number is 571-272-1143. The examiner can normally be reached on 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda L. Walker can be reached on 571-272-1151. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Krishnan S Menon  
Primary Examiner  
Art Unit 1723